MAR 17 2016

WW-16J

Colonel Christopher G. Beck
District Engineer
U.S. Army Corps of Engineers
Louisville District
P.O. Box 59
Louisville, KY 40201-0059

Re: United Minerals Company, LLC-Seven Hills Mine, LRL-2013-635-GJD

Dear Colonel Beck:

The U.S. Environmental Protection Agency and the U.S. Fish and Wildlife Service (FWS) (the agencies) have reviewed the Clean Water Act (CWA) Section 404 permit application (permit application) materials and the Public Notice for the subject project. The agencies appreciate the efforts by the Louisville District to involve the EPA, FWS and other agency partners in preliminary discussions and reviews of the proposed Seven Hills Mine and other mining activities proposed nearby.

United Minerals Company, LLC (United Minerals) proposes to impact 510.16 acres of wetlands (of which 463.18 acres are forested wetlands), 53,840 linear feet of streams and 72.85 acres of open water, for the construction of the 1,679.6 acre Seven Hills Mine in the Highland-Pigeon Creek watershed southeast of Elberfeld in Warrick County, Indiana. Approximately 648.5 acres of the site have been previously mined and reclaimed in the 1990s and are not proposed to be impacted for coal extraction. Both agencies have commented on the preliminary plan for this mine, and we want to highlight the following comments based on our reviews of the permit application and subsequent Public Notice.

The Seven Hills Mine is immediately west of the recently proposed High Point Mine and the nearby Liberty Mine. These three adjacent mines would cumulatively impact over 100,000 linear feet of streams and 600 acres of wetlands within the Highland-Pigeon Creek watershed. Given the scope and environmental impacts associated with these proposals, the agencies continue to believe that the projects should be evaluated in a coordinated fashion, and that an Environmental Impact Statement (EIS) should be prepared. This would allow for a more comprehensive analysis of cumulative impacts, and consideration of additional practicable alternatives that could meet the project purpose while avoiding and minimizing anticipated significant environmental impacts.

The agencies are concerned that the project's proposed CWA Section 404 discharges may result in unacceptable impacts to Pigeon Creek, its forested floodplain wetlands and tributaries, and

may impact downstream receiving waters, such as the Ohio River. The effects of multiple large scale surface mining operations and agricultural activities have increasingly taken a toll on the Pigeon Creek watershed. Project area aquatic resources, such as contiguous tracts of increasingly rare bottomland hardwood wetlands, filter out nutrients, and excess sediments and other pollutants to help prevent them from entering nearby tributaries. The loss of these project area aquatic resources would eliminate this function and its contribution to maintaining water quality in downstream waters, such as the Ohio River. Furthermore, the agencies have concerns that, based on the past performance of mitigation efforts in nearby watersheds, proposed efforts to offset impacts to project area aquatic resources may not prove successful.

The affected wetlands and other bottomland forest provide essential habitat for state endangered and federally listed species including Indiana bats (*Myotis sodalis*), northern long-eared bats (*Myotis septentrionalis*), evening bats (*Nycticeius humeralis*), cerulean warblers (*Setophaga cerulean*), northern harriers (*Circus cyaneus*), and copperbelly water snakes (*Nerodia erythrogaster neglecta*). All of these species and several state species of special concern have been documented within the project area. The agencies are concerned about the potential impact of the project on these species.

Indiana has lost eighty-five percent of its wetlands, and large remaining tracts such as those present at the project site are rare. In particular, forested wetlands are a declining resource. According to the National Wetland Reports by FWS, forested wetlands experience the greatest decline of all wetlands types. United Minerals asserts that the additional range of habitat types that would result from reclamation activities at the Seven Hills Mine site will be an improvement over existing conditions. However, given the high acreage of forested wetlands that would be lost, the time it takes for forests to mature, and the poor performance of mitigation on the nearby Somerville and North Millersburg mines, it is highly unlikely that the reclaimed areas will develop habitat that is more productive than what currently exists.

The agencies detailed comments follow.

Independent Utility

The Seven Hills Mine would abut the proposed 3,084.6 acre High Point Mine (LRL-2013-444-rjb), which is also operated by United Minerals. As proposed, the Seven Hills Mine would share the coal slurry pond established as a component of the High Point Mine. Haul roads and other attendant features that would provide access to and serve the Seven Hills Mine, are also described in the High Point application. Based on the information currently available to the agencies, it is unclear whether the Seven Hills Mine would be considered to have independent utility. Therefore, the agencies' request that the Corps treat the proposed High Point Mine and proposed Seven Hills Mine as a single project. Evaluating the two mines as a single project would allow for a more complete evaluation of practicable alternatives, including efforts to further avoid and minimize environmental impacts. The agencies' previous letters requesting that both proposed mines be evaluated as a single project are enclosed (Enclosures 1 and 2).

Significant Degradation

In accordance with the Clean Water Act Section 404(b)(1) Guidelines (the Guidelines), the agencies believe that this project as proposed may cause or contribute to a significant degradation of Pigeon Creek.[1] The preamble to the Guidelines states that discharges may not be permitted if they will have "significantly" adverse effects on various aquatic resources. In this context, "significant" and "significantly" mean more than "trivial."

Secondary and cumulative impacts are explicitly evaluated during the significant degradation determination. Secondary impacts include effects on an aquatic ecosystem that are associated with a discharge of dredged or fill materials, but do not result from the actual placement of the dredged or fill material.[2] Cumulative impacts are the changes in an aquatic ecosystem that are attributable to the collective effect of a number of individual discharges of dredged or fill material. Although the impact of a particular discharge may constitute a minor change in itself, the cumulative effect of numerous such piecemeal changes can result in a major impairment of the water resources and interfere with the productivity and water quality of existing aquatic ecosystems.[3]

The table below summarizes the cumulative footprints of mining activities in the Highland-Pigeon Creek Watershed and the enclosed map graphically depicts those activities (See Attachment 1).

Mining Activity in Indiana Portion of Highland-Pigeon (HUC 8) Watershed	Acres	Square Miles
Actively removing overburden and/or coal extraction	26,856	42
Overburden removal and coal extraction complete	7,308	11
Permit bonded - no overburden removal or coal extracted	4,899	8
Temporary cessation of operations	10	~0
Reclaimed Mines	23,135	36
Total	**62,208**	97

Within the Highland-Pigeon Creek watershed (8-digit HUC 05410202) over 352.67 acres of wetlands and 527,689 linear feet of stream impacts have been permitted for direct impact by surface coal mining operations in the last 8 years. An additional, 555.86 acres of wetland impacts (including impacts to 463.83 acres of forested wetlands) and 113,187 feet of stream impacts have been identified on the proposed mine sites for the Seven Hills and High Point mines. In total, the permitted and proposed mining activities account for 18,762.6 acres of direct impact, which is 7.9% of the total area of the Highland-Pigeon Creek watershed.

[1] 40 CFR 230.1(c)
[2] 40 CFR 230.11(h)
[3] 40 CFR 230.11(g)

The proposed loss of nearly 500 acres of forested wetlands from this project would will increase nutrient loading and sedimentation, causing or contributing to significant degradation of Pigeon Creek and ultimately affecting the quality of freshwater inflow to the Ohio River. Pigeon Creek is listed as impaired for E. coli, dissolved oxygen, impaired biotic communities and nutrients and the Ohio River is listed as impaired for E. coli, dioxin, total mercury and PCBs on Indiana's 303(d) list of impaired waters.[4] Given the algal issues in the Ohio River in 2015, the agencies are also concerned about possible effects in the Ohio River with respect to safe drinking water, wildlife and recreation (see Attachment 2).

In addition to the localized impacts to water quality, the increase of nutrients and specifically nitrogen in watershed has had a demonstrated effect on water quality. The United States Geologic Survey published a study on the percentage of nitrogen from interior watersheds delivered to the Gulf of Mexico. The Highland-Pigeon Creek watershed was estimated as one of the watersheds to contribute more than 90% of its nitrogen to the Gulf.[5] EPA's initial SWAT modeling, which does not include cumulative impacts of mining, indicates that the loss of these wetlands along Pigeon Creek would increase nutrient loads to the Ohio River by over 3,500 pounds annually and increase sediment loads by over 260,600 pounds annually.

Project Area Aquatic Resources

The agencies are concerned that the project's CWA Section 404 discharges may result in unacceptable impacts on the Ohio River, Pigeon Creek, and its forested floodplain wetlands. The bottomland hardwood forests within the Pigeon Creek floodplain are an important and productive habitat. In addition to the habitat value of natural areas, bottomland hardwoods serve a critical role in the watershed by reducing the risk and severity of flooding to downstream communities by providing areas to store floodwater. These wetlands improve water quality by filtering and flushing nutrients, processing organic material, and reducing sediment before it reaches open water.[6]

The Pigeon Creek floodplain is an extremely valuable resource for numerous and significant wildlife species, including migratory birds, non-game wildlife, and threatened and endangered species. Portions of the corridor contain Indiana Department of Natural Resources (IDNR) wetland conservation areas, and other portions are recognized for their unusually high diversity of bird species. The permit area is bordered on the east by an Audubon Society Important Bird Area and on the southeast by the IDNR Bluegrass Fish and Wildlife Area. Bird surveys by Audubon Society members in these two areas and in the Buckskin Bottoms area upstream of the permit area reported over 200 species of birds, including 25 species of waterfowl and 14 species listed as state endangered. Given the proximity and similarity of habitat, it is highly likely that many of those bird species also use this area.

From its headwaters, Pigeon Creek flows approximately 47.5 miles bisecting downtown Evansville before joining with the Ohio River. During the 1800's, Pigeon Creek was part of the

[4] IDEM, 2014 Indiana Integrated Report Appendix H, 303(d) Attachment 1: TMLD Development Schedules
[5] Richard B. Alexander, Richard A. Smith, and Gregory E. Schwarz, "Effect of stream channel size on the delivery of nitrogen to the Gulf of Mexico", *Nature*, 17 February 2000, Vol. 403
[6] http://water. epa.gov/type/wetlands/bottomland.cfm

Wabash-Erie Canal and a portion of Pigeon Creek onsite is part of the former canal. Today, the creek provides several recreational paths and fishing access for the public to enjoy. The City of Evansville has developed the Pigeon Creek Greenway Passage. This path is a multiuse trail that follows the creek and then extends along the banks of the Ohio River. The Greenway also incorporates boat launches that the City of Evansville touts as "an important urban watershed and wildlife corridor where you might see an egret or blue heron. With its diversity of plants and animals, the Greenway serves as an outdoor classroom and a valuable learning tool for the environment."[7] In 2004, the path was designated a National Recreation Trail by the National Park Service.

Wetlands in the Pigeon Creek watershed also help to protect the quality of the Ohio River from nonpoint source pollution from urban runoff, agricultural activities, and both existing and abandoned mines. The Ohio River serves as a source of drinking water, hydroelectric energy, shipping route to the Mississippi River, recreation and fishing. There are presently several fish consumption advisories for the Ohio River.[8]

Endangered and Threatened Species

The proposed project is within the range of the federally endangered Indiana bat (*Myotis sodalis*), and the federally threatened northern long-eared bat (*Myotis septentrionalis*). An Indiana bat maternity colony from a known primary roost tree has been documented using the southern portion of the proposed project area for foraging, and bat survey results indicate the presence of an additional maternity colony which forages on the northern end of the permit area. Although it has not been addressed in the permit application, at least one northern long-eared bat maternity colony has also been documented in the project area; reproductively active females were captured during bat surveys. The proposed mining activity will temporarily or permanently eliminate approximately 690 acres of summer habitat for these species. The proposed restored forest will not become suitable habitat for many years, if ever.

The copperbelly water snake (*Nerodia erythrogaster neglecta*) is known to have reproducing populations along the Pigeon Creek corridor, with known records of individuals in the project area. This species is federally listed as threatened in the northern part of its range, but listing was precluded in southern Indiana due to the development of a Copperbelly Water Snake Conservation Agreement and Strategy, endorsed by the FWS, the Indiana DNR, and the Indiana Coal Council (Agreement). Even though it has expired, the Agreement has proven effective in avoiding impacts to and conserving copperbelly water snake habitat. This permit application is the first action that the FWS is aware of that would not follow the tenants of the Agreement. This type of mining activity in prime habitat could cause the FWS to re-evaluate listing of the southern population of the copperbelly water snake.

The following species were also documented within the project area:

[7] http://www.evansvillegov.org/modules/showdocument.aspx?documentid=12739
[8] http://orsanco.org/river-factsconditions

State endangered species: northern harrier, least bittern, black-crowned night heron, black tern, Henslow's sparrow, osprey, yellow-headed blackbird, short-eared owl, sedge wren, marsh wren, barn owl, Virginia rail, American bittern, and loggerhead shrike.

Waterfowl: Canada goose, gadwall, mallard, hooded merganser, red-breasted merganser, bufflehead, ruddy duck, wood duck, northern shoveler, lesser scaup, American wigeon, redhead, ring-necked duck, green-winged teal, common goldeneye, northern pintail, snow goose, canvasback, American black duck, tundra swan, greater scaup, cackling goose, white-winged scoter, common merganser, and mute swan.

Scope of NEPA Analysis

The NEPA analysis should include the entirety of the area proposed for mining, including both uplands and aquatic resources. As a result of the proposed Corps' action, there would be direct, indirect, and cumulative human health and environmental impacts beyond the regulated waters, including indirect or cumulative impacts that may be outside of the mine footprint. The NEPA analysis should extend outside of the regulated activity because the "*environmental consequences of the larger project are essentially products of the Corps permit action*".[9] Further, based on potential impacts to aquatic resources and threatened or endangered species, sufficient Federal involvement exists to expand the scope of the NEPA analysis beyond the regulated activity.[10] Based on the above, the agencies find that the scope of the NEPA analysis should extend outside of the regulated activity, based on potential direct, indirect, and cumulative impacts to resources.

As discussed above under *Independent Utility*, EPA recommends the scope of the NEPA analysis include both the Seven Hills Mine and the adjacent High Point Mine. The analysis should also consider other mines which may be connected actions[11] and/or similar actions.[12] Impacts from nearby mining operations should be analyzed in the same NEPA document.

Preparation of an Environmental Impact Statement

NEPA states that major federal actions which could significantly affect the quality of the human environment require an EIS be prepared. The Council on Environmental Quality (CEQ) has defined "significantly" by two criteria: *context* and *intensity* of impacts of the proposed project.[13] Seven Hills Mine would cause significant environmental impacts, and, therefore, an EIS should be prepared. We recommend consideration of the following factors regarding significance:

- **Cumulative Impacts:**[14] The proposed mine and the other mining activities would likely lead to impacts to the environment and human health that are cumulatively significant. Mining in this watershed has continued over the last 100 years. A

[9] 33 CFR Part 325, Appendix B Section 7(b)(2)
[10] 33 CFR 325 Appendix B, Section 7(b)(2)(iv)
[11] 40 CFR § 1508.25(a)(1)
[12] 40 CFR § 1508.27
[13] 40 CFR § 1508.27
[14] 40 CFR § 1508.27(b)(7)

cursory examination of surface coal mining projects within the Highland-Pigeon Creek watershed (8-digit HUC 05410202) in the last 8 years shows that over 352.67 acres of wetlands and 527,689 linear feet of stream impacts have been permitted for direct impact by surface coal mining operations. Additionally, 555.86 acres of wetland and 113,187 feet of stream have been identified on the proposed mine sites, which include Seven Hills and High Point mines. All permitted and proposed mining activities in the last 8 years directly affect 18,762.6 acres, which is 7.9% of the total area of the Highland-Pigeon Creek watershed.

Both particulate matter and hazardous air pollutant levels would be expected to increase as a result of continued mining in the area, exacerbating human health problems related to poor air quality. Nearby communities also experience cumulative and multiple impacts related to the mining and processing of coal, such as noise and vibration. Additionally, the eventual combustion of coal mined at Seven Hills and High Point mines would release high levels of greenhouse gas emissions and contribute to climate change. Therefore, because the impacts from the Seven Hills Mine and other proposed mines could potentially have cumulatively significant impacts on human health and the environment, an EIS should be prepared.

- **Unique characteristics of the geographic area:**[15] The mine site includes areas which the agencies consider to be of significant value: Pigeon Creek and the bottomland hardwoods in the Pigeon Creek watershed. The subwatershed (12-digit HUC Clear Branch Pigeon Creek) is a candidate for protection per Indiana Department of Environmental Management (IDEM) watershed management plans. The fact that eighty five percent of the wetland resources once present in Indiana have been lost or altered makes remaining wetlands especially critical resources for conservation.[16] According to the Indiana Wetlands Conservation Plan, wetlands serve important functions, both in human benefits, such as maintaining the quality of drinking water and controlling flooding, and in environmental benefits, such as providing habitat for wildlife, including threatened and endangered species. The resources proposed for impact onsite are used by an endangered species, a threatened species, and a species listed as threatened in its northern range. Based on the scale of the proposed project's impacts to important aquatic resources and other ecologically critical areas, an EIS should be prepared.

- **Public Health or Safety:**[17] Living near proposed surface coal mines increases exposure to pollutants and other hazards, raising human health concerns, such as cardiopulmonary diseases and cancers, respiratory disease, kidney disease, hypertension, and issues related to psycho-social stressors.[18] Environmental impacts

[15] 40 CFR § 1508.27(b)(3)
[16] Status and Trends Report on State Wetland Programs in the United States.
[17] 40 CFR § 1508.27(b)(2)
[18] Hendryx, M., and Ahrem, M. *Relations between health indicators and residential proximity to coal mining in West Virginia*. American Journal of Public Health, 2008; 98: 669-671, Walker, E., PhD and Payne, D., MPH *Health Impact Assessment of Coal and Clean Energy Options in Kentucky*. Rep. Kentucky Environmental Foundation, n.d. Web 19 Nov. 2015

from surface coal mining, processing, and burning that contribute to human health include, but are not limited to, water contamination, air emissions, noise, vibration, and flooding. Federally enforceable state regulations prohibit visible emissions from mining activities from crossing property lines,[19] though mine blasting may not be able to meet that requirement. Demographic data indicate a high percentage of children living in the area are under the age of five. Children are particularly vulnerable to impacts from exposures to air pollutants. Environmental data show high levels of particulate matter ($PM_{2.5}$) and a high number of major water dischargers in the area. We are concerned about cumulative impacts to the surrounding communities given that Seven Hills Mine would be located near other operating and proposed mines, further exacerbating existing exposures. Based on the potentially significant impacts to public health and safety, an EIS should be prepared.

- **Threatened and Endangered Species:**[20] As discussed above, the proposed Seven Hills Mine is within the range of the endangered Indiana bat (*Myotis sodalis*) and the threatened Northern long-eared bat (*Myotis septentrionalis*) and these species have been documented using the site. Additionally, the Copperbelly watersnake (*Nerodia erythrogaster neglecta*) is known to have breeding populations along Pigeon Creek. Because there are potentially significant impacts to threatened or endangered species, an EIS should be prepared.

The agencies note that preparation of an EIS for a surface coal mine would not set a new precedent for the analysis of impacts to human health and the environment. EISs have been prepared for coal mines with similar scopes of impacts, such as:

- Fort Worth Corps District is currently considering a Regional Draft EIS for Surface Coal and Lignite Mining in Texas (Draft EIS CEQ #20150191);
- Fort Worth Corps District prepared an EIS for the Rusk Mine in Texas (Final EIS CEQ #20110148);
- Fort Worth Corps District prepared an EIS for the Three Oaks Mine in Texas (Final EIS CEQ #20030199); and
- Louisville Corps District previously issued an EIS for the Delta Coal Mine Complex in Illinois (Final EIS CEQ #19960416).

The NEPA process allows the Corps to fully consider potential impacts and measures to avoid, minimize, and mitigate those impacts as a means to achieve more informed decision-making and better project outcomes. The scope of analysis for the NEPA document on the proposed Seven Hills Mine should cover the entire mine site, including both uplands and aquatic resources, and the entirety of High Point Mine. Due to potentially significant cumulative impacts, adverse impacts to threatened and endangered species, impacts to unique characteristics of the geographic area, and risks to public health and safety, the agencies believe the Corps should prepare an EIS.

[19] 326 Indiana Administrative Code 6-4-2
[20] 40 CFR§ 1508.27(b)(9)

Mitigation and Monitoring

The applicant proposes to mitigate for 510.16 acres of wetland (462.18 acres palustrine forested, 19.81 acres palustrine emergent, 13.43 acres of palustrine emergent, and 1.04 acres of palustrine unconsolidated bottomland) and 53,840 linear feet of ephemeral, intermittent and perennial stream, using a combination of on-site stream mitigation, and on-site and off-site wetland mitigation, in and out-of-type. Approximately 49,627 linear feet of stream is proposed to be constructed on-site in the approximate original contour.

Compensatory mitigation is the last step in the sequence during a CWA Section 404 permit review.[21] An in-depth discussion regarding mitigation is premature without first considering additional avoidance and minimization efforts to help ensure that proposed discharges represent the least environmentally damaging practicable alternative. However, the agencies have reviewed the proposed on-site and off-site compensatory mitigation plans and offer the following general comments at this time to help improve the mitigation plan.

The mitigation plan does not consider and compensate for the secondary, cumulative, and temporal effects of this project on the immediate and greater watershed. With two active and proposed abutting mines in the same watershed, it is imperative to take connectivity into account when designing mitigation.

The mitigation ratio proposed for forested wetland is 2:1. In support of this ratio, the applicant states that off-site mitigation will begin once the permit is issued, thereby offsetting both temporal and cumulative loss. This proposed mitigation ratio is not sufficient given the valuable functions of the resources proposed to be impacted, the temporal loss of function between the time the wetlands are impacted and the maturation of the mitigation site, and the risk associated with establishing forested wetlands. Forested wetlands experience the greatest decline of all wetland types and are extremely difficult to restore or create.

EPA and FWS recommend that the applicant be required to mitigate for bottomland hardwood forest at a ratio of 4:1. This ratio is appropriate given that the Federal Mitigation Rule states that the district engineer must require a mitigation ratio greater than one-to-one where necessary to account for the method of compensatory mitigation (e.g., preservation), the likelihood of success, differences between the functions lost at the impact site and the functions expected to be produced by the compensatory mitigation project, temporal losses of aquatic resource functions, the difficulty of restoring or establishing the desired aquatic resource type and functions, and/or the distance between the affected aquatic resource and the compensation site.[22] For mitigation to be considered successful, performance standards in the mitigation plan would have to be achieved. It is our understanding that the hydrology will not be re-established until the end of mine excavation for those areas of the project where mitigation is proposed within the mine footprint (rather than the mitigation proposed at the "avoided" areas).

Previous mitigation projects on mine sites have shown that the establishment, restoration, and enhancement of aquatic resources involves risk, and success in generating functional lift is often

[21] 40 CFR 230.91(c)
[22] 40CFR 230.93(f)(2)

elusive. The FWS asserts that wetlands of this magnitude, and in this landscape location, cannot be adequately restored based on the failure of previous efforts to restore bottomland forest associated with the North Millersburg Mine. The finished topography on much of the reclaimed area was too high in elevation to function as bottomland forest. Whereas the original intention of the reclamation plan was to reproduce floodplain elevations with forest surrounding the impoundments, in some areas the land adjacent to the impoundments looks more like rolling hills than floodplain. The area now consists chiefly of a mixture of upland fields, upland non-forested areas and large, shallow permanent impoundments. The Final Mitigation Rule requires the Corps to incorporate the consideration of risk into its compensatory mitigation decisions. This is generally done by applying appropriate ratios so that the amount of compensation will be adequate to offset the authorized impacts even if the mitigation is not 100% successful.

The plan proposes to restore 510.6 acres of palustrine forested wetlands within the proposed mine boundary and discusses how restoration in areas east of Pigeon Creek will allow for streams and wetlands to interact hydrologically during periods of overbank flooding. However, it is unclear how this interaction will be affected given the existing levee that runs along the east edge of Pigeon Creek, directly west of a portion of the proposed on-site mitigation. The floodway modification plan for this area is not supported by hydrologic monitoring or modeling. The application indicates a runoff retention ratio of 5:1 for the proposed area; however, runoff retention ratios of 20:1 are considered optimal for forested wetland based on the referenced study. Additional clarification on the determination of 2,500 acres as the contributing cumulative watershed is needed. The mitigation plan does not detail how the proposed stream and wetland mitigation will tie in with aquatic resources adjacent to the site boundary.

Assessment of existing uses should also consider the increased streambed infiltration that results from attempting to restore streams in mined areas. It is likely that the intermittent and ephemeral streams would not have adequate flow, which will impact existing uses in the compensatory mitigation streams. Considering the extensive impacts to the Highland-Pigeon Creek watershed as identified in the IDEM Highland-Pigeon Creek watershed management plan, stream corridor restoration efforts for the channelized sections of Pigeon Creek within, as well as up and downstream of the project boundary, are warranted.

In addition to the on-site reclamation, the applicant proposes off-site mitigation on 575.9 acres on Greathouse Island, an abandoned oxbow of the Wabash River, in Posey County, Indiana. Proposed mitigation measures include reforestation on 316.9 acres of open land and enhancement of 258.9 acres of existing forested wetland. The off-site wetland mitigation proposal is not acceptable. This proposed site is outside of the watershed of impact, and while it may provide some benefits to the Ohio River, to which the Wabash River is a tributary, it will not provide functional benefits to the Highland-Pigeon Creek watershed which has been extensively altered by mining. Permittee-responsible mitigation (PRM) projects are designed to offset specific impacts, and are therefore more likely to reduce the severity of project site impacts. The off-site PRM proposed on Greathouse Island appears to be intended to offset functional losses, however, they would not occur within the project footprint and would not result in functional gains within the watershed. According to the application, the enhancement areas will be selectively harvested to reduce the existing canopy cover by 50 percent. It is

unclear how harvesting trees from an existing forested wetland will provide mitigation for forested wetland impacts. The instability of the proposed site is also of concern. This site is a remnant meander of the Wabash River that is part of a dynamic system within a floodplain. Upstream hydrologic processes and perturbations will control hydrology in this area, including reactivating former channels and influencing channel shifting in the long-term. This complicates the long term management of the site and maintenance of functions in perpetuity.

The applicant claims that the off-site mitigation will provide additional habitat for the federally endangered Indiana bat, as well as several other bat species. While the mitigation, if successful, will provide habitat for the Indiana and northern long-eared bat, it will take several years before it is suitable foraging habitat and many more years before it becomes suitable roosting habitat, if ever. Also, the off-site mitigation will not provide any benefit to the known maternity colonies in the proposed project area, as both Indiana and northern long-eared bats display high site fidelity, returning to the same roosting habitat year after year.

While the objectives of the mitigation area are to provide flood, sediment, and nutrient storage for the Wabash River, there is no indication of the degree or level of functional lift provided compared to existing conditions, how that lift would benefit the watershed of impact or the likelihood of success given the activities proposed. Because it will take some years before the off-site mitigation is established, and it is nearly 40 miles and two watersheds away from the impact area, it is unlikely to offset either the temporal or cumulative loss of wetlands. EPA and FWS recommend the applicant explore mitigation opportunities within the impacted watersheds specified in the IDEM June 2003 Highland-Pigeon Creek Watershed Management Plan.

Monitoring and Long Term Management

The applicant needs to address financial assurances in a CWA Section 404 context and provide a long-term management strategy/plan for mitigation areas. The Guidelines state that "financial assurances may be in the form of performance bonds, escrow accounts, casualty insurances, letters of credit, legislative appropriations for government sponsored projects, or other appropriate instruments".[23] The increase in coal companies filing for Chapter 11 Bankruptcy[24] and the inherent risk in re-creating streams and wetlands on-site in the post mining landscape necessitate the establishment of appropriate financial assurances.

To comply with the Mitigation Rule, the applicant must provide detailed long-term management plans. A long-term management plan should include a description of the long-term management needs and annual cost estimates for these needs, and should identify the funding mechanism that will be used to meet those needs. Appropriate long-term financing mechanisms include endowments, trusts, contractual arrangements with future responsible parties, and other appropriate financial instruments.

[23] 40 C.F.R. §230.93(n)(2)
[24] http://www.businessfinancenews.com/24344-is-arch-coal-inc-on-the-verge-of-chapter-11-bankruptcy/

An adaptive management plan is provided, however, it does not include a root cause analysis or describe necessary corrective actions if insufficient hydrology makes stream restoration infeasible.

As part of the monitoring program for affected and reconstructed streams, physical, chemical and biological monitoring should be required. Biological monitoring, along with water chemistry and physical assessments, should occur: 1) prior to the initiation of mining activities to establish baseline conditions; 2) during the mining activities to assist in determining potential impacts to aquatic habitat and water quality downstream of the impacts; and 3) for at least five years after the completion of stream restoration and site reclamation activities at the mine site where appropriate to determine mitigation success. The applicant has not proposed sampling during mining.

The applicant currently proposes to monitor for 10 years or until success criteria are met. EPA agrees with this monitoring schedule as long as appropriate performance standards are established and met post mining. However, it should be noted that the expected tree growth may not advance during the 10 year monitoring period to the point where it will qualify as a palustrine forested wetland.

Thank you for your consideration of our comments and recommendations to aid in the evaluation of project impacts to environmental resources within the Pigeon Creek Watershed, consistent with the requirements of the NEPA, CWA and ESA. We look forward to discussing these comments with you. Prior to the closing of the public comment period additional CWA Section 404 comments will be forthcoming. Please contact Wendy Melgin from the U.S. Environmental Protection Agency at melgin.wendy@epa.gov or (312) 886-07745 and Marissa Reed from U.S. Fish and Wildlife Service at marissa_reed@fws.gov or (812)334-4261 with any questions.

Sincerely,

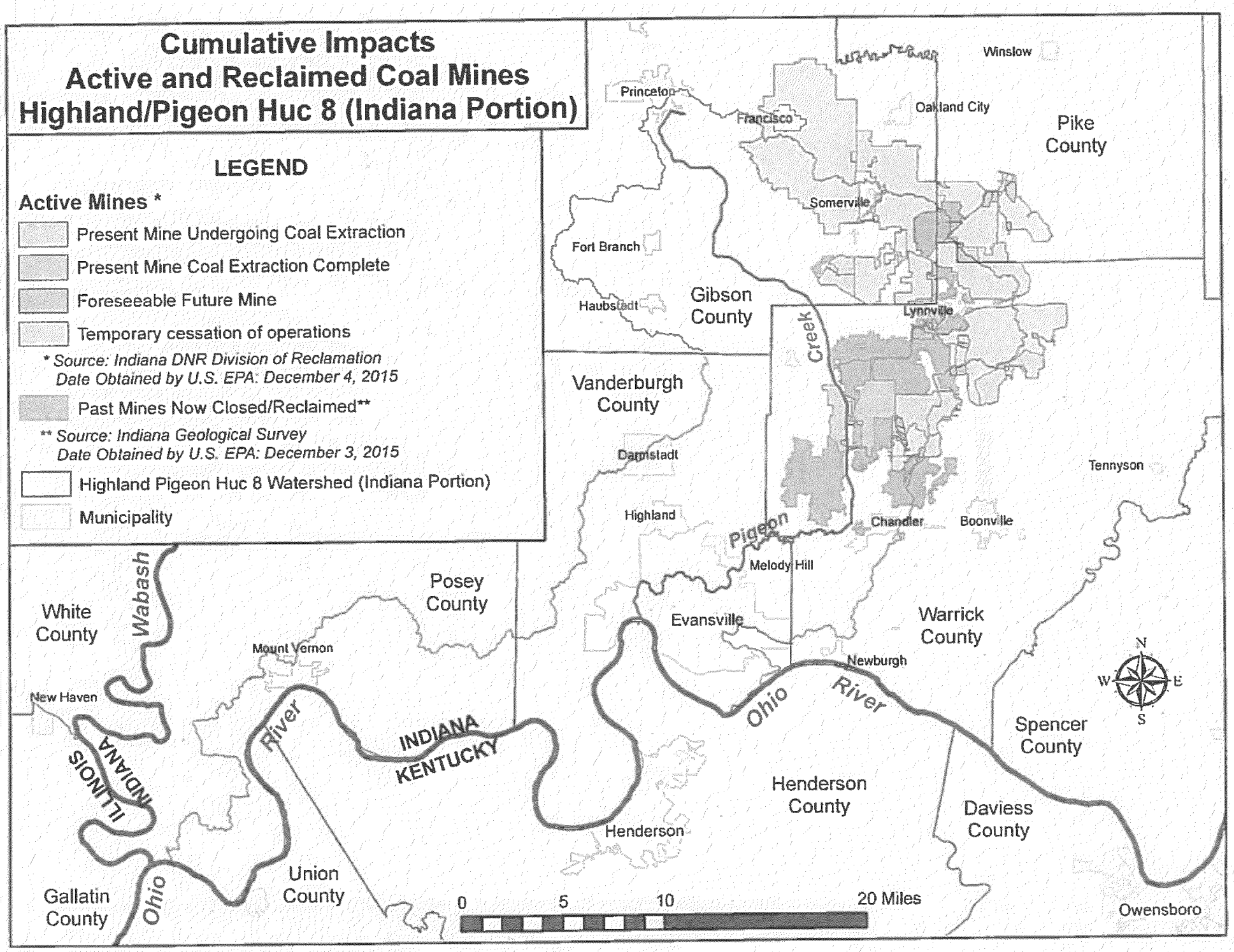
Tinka Hyde
Director, Water Division
U.S. Environmental Protection Agency

Scott Pruitt
Field Supervisor
U.S. Fish and Wildlife Service

Enclosures
Attachments

cc: Martha Clark-Mettler, IDEM
David Carr, IDEM
LeAnne Devine, USACE-Louisville District
George DeLancey, USACE-Louisville District
Bob Krska, USFWS-Regional Office, Bloomington, MN
Jason Miller, USFWS-Headquarters, Falls Church, VA

Attachment 1



Attachment 2

October 2015 Microcystin Concentrations and Proximity to Drinking Water Intakes